

single basal axile ovule; disc small and annular; style slender, about 4.5 mm long, bluntly tuberculate towards the apex; stigma capitate, 2-lobed, papillate. Fruit obovate to spherical with the persistent calyx teeth, 3.5 to 4 mm long, shortly hairy towards the apex, glabrous towards the base, splitting into 2 indehiscent cocci and falling at maturity from the leaf axil. Seeds flattened-obovate, smooth, pale brown, concave on the ventral face with a longitudinal ridge, apically incurved.

The herbarium specimen Ravi 2429 A, Chathan-

noor, 6-7-1988, has been deposited in the Kew Herbarium, England, and its duplicates 2429 B, 2429 C and 2429 D have been deposited in the CNH, Howrah, MH, Coimbatore and Sree Narayana College Herbarium, Quilon, respectively.

We thank the Director, Royal Botanic Gardens, Kew, for identifying the taxon.

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December 13, 1988.

44. A NOTE ON THE ANOMALOUS FLOWERING BEHAVIOUR IN *CURCUMA CAESIA* (ZINGIBERACEAE) (With a text-figure)

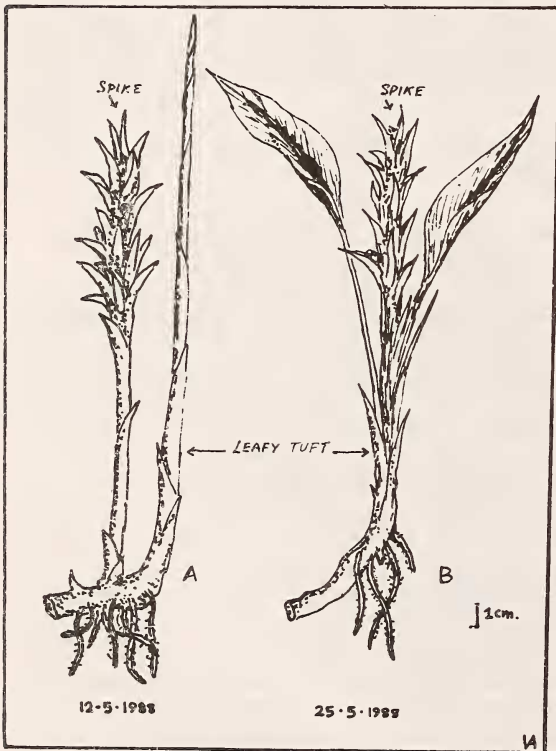


Fig. 1. *Curcuma caesia* exhibiting both lateral (A) and central (B) spikes within a short span of 2 weeks.

Flowering behaviour (flowering season and position of inflorescence) is a key character in delimitation of *Curcuma* species. Normally, those species that flower in autumn (autumnal) possess central spikes arising from the centre of the leafy tuft while those that flower in summer (vernal) have lateral spikes arising from the lateral buds of rhizome or sessile tubers, before leaf formation.

Normal flowering has been observed in *C. longa*, *C. decipiens*, *C. pseudomontana*, *C. peethapushpa* (section Mesantha) which exhibited autumnal flowering with central spikes and in *C. aromatica*, *C. zeodaria*, *C. comosa*, *C. caesia* (section Exantha) which exhibited vernal flowering with lateral spikes. *C. caesia* (Black zeodary; section Exantha), however, exhibited anomalous flowering behaviour this year by producing both lateral and central spikes within a short span of time during late summer (Fig. 1). Some plants of a population of *C. caesia* grown at Vellanikkara produced lateral spikes initially and a few other plants of the same population produced central spikes after about two weeks.

Santapau (1953) recorded lateral spikes in summer and later, central spike in monsoon from *C. pseudomontana* plant. This type of anomaly has also been reported from another Zingiberaceae plant, *Zingiber officinale* by Velayudhan *et al.* (1983). Such anomalies in the genus *Curcuma* have been a point of great controversy (Manilal and Sivarajan 1982). Past reports on the genus by Santapau (1953 & 1958) and Chavan & Oza (1966) supported the view of Roxburgh (1810) that the flowering spikes' position in *Curcuma* was seasonal and its value as a basic key for species delimitation was doubtful. Lately, Saldhana and Nicolson (1976) had also expressed similar views. However, as noted by Burt (1972), before deciding the validity of flowering behaviour as a key character for identification, further observations on seasonal flowering behaviour in other species of *Curcum* are needed.

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45. *PASPALUM LONGIFOLIUM* ROXB.: A GRASS NEW TO UTTAR PRADESH, INDIA

Recently Mr. Pancham Singh of the Botany Department, D.A.V. (P.G.) College, Dehra Dun, collected a grass from Nakraunda, district, Dehra Dun, which we could not match with any species represented from Uttar Pradesh. The grass was identified as *Paspalum longifolium*, whose home is principally in northeast India (Bor 1940 & 1960). It has also been reported to occur in Keraia (Fischer 1934), Gujarat (Patil 1965), Madhya Pradesh (Naithani & Raizada 1977) and even outside India. The present paper records for the first time the occurrence of this grass from Uttar Pradesh.

Paspalum longifolium Roxb. (Hort. Beng. 7. 1814, *nomen*) Fl. Ind. 1:283. 1820; Hsu, Taiwan Grass. 585. fig. 586. 1975.

A perennial grass. Culms 50–125 cm tall; leaves 35–80 cm X 4–6 mm. Inflorescence a panicle made up of 6–24 false spikes; spikelets 4-seriate; lower glume absent, the upper obovate-oblong, 3-nerved; lower floret barren; lemma 5-nerved; palea like lemmas. Caryopsis broadly

ovate.

Specimen examined: Nakraunda, Dehra Dun, 26 Oct. 1986, Pancham Singh ex Herb. Som Deva No. 10690 (DD & BSD).

Distribution: India (northeast India, Kerala, Gujarat, Madhya Pradesh), Nepal, Sri Lanka to Vietnam, Taiwan, North Australia and Malaysia.

Ecology: Solitary or in groups in moist places, e.g. along river banks, in swamps and pools, in floating grass communities, growing in water upto 60 cm deep. A common invader in wet and open, disturbed places. Associated with *Bothriochloa*, *Echinochloa*, *Eriocaulon*, *Miscanthus*, *Oryza*. On sandy, loamy clayey, alluvial soils, upto 1700 m altitude (De Koning & Sosef 1985).

Chromosome number: $2n = 40$ (Chen & Hsu 1961).

Uses: Some value as fodder grass for buffaloes (Bor 1960).

April 9, 1988.

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